NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE GENERAL SPECIFICATIONS

FORAGE HARVEST MANAGEMENT

(Acre)
CODE 511

OBJECTIVE

The objective of the practice is to produce high quality hay, green chop, and silage in an economical manner and maintain quality of the stand while promoting vigorous re-growth.

GENERAL SPECIFICATIONS

This material supplements the criteria and considerations listed in the conservation standard.

FORAGE HARVESTING

Stage of Growth

Refer to Table 1, "Recommended Stage of Growth to Harvest Various Hay Crops".

Moisture Content

Refer to Table 2, "Moisture Content for Silage, Haylage, and Hay Crops".

Delay harvest if prolonged or heavy precipitation is forecast that would seriously damage cut forage. Where weather conditions make it difficult to harvest the desired quality of forage, use mechanical and/or chemical conditioners or ensile.

Harvest silage/haylage crops at the ideal moisture range for the type of storage structure(s) being utilized.

Treat direct cut hay crop silage (moisture content > 70%) with chemical preservatives or add dry feed stuffs to avoid fermentation and seepage digestible dry matter losses.

For optimal forage quality, rake, ted, or invert swaths, and bale when hay has dried to optimal moisture level to prevent mold and preserve forage quality.

Approximate percent moisture should be as follows:

- Bale field cured hay at 12 to 20 percent moisture.
- Bale forced air-dried hay at 20 to 35 percent moisture.
- Rake hay at 30 to 40 percent moisture.

Ted or invert swaths when moisture is above 40 percent.

Physical Process

When harvested for silage, forage will be chopped to a size that allows adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process.

Contaminants

Contaminants are any objectionable matter, weeds, or toxins that can cause illness, death, or rejection of the offered forage.

FORAGE STAND MAINTENANCE

Stand Maintenance

If plants show signs of short-term environmental stress, management will be

adjusted to ensure continued health and vigor of stand.

Cut forage plants at a height that will promote the vigor and health of the desired species. Cutting heights will provide adequate residual leaf area; adequate numbers of terminal, basal, or auxiliary tillers or buds; insulation from extreme heat or cold; and/or unsevered stem bases that store food reserves needed for full, vigorous recovery.

Manipulate timing and cutting heights of harvest to ensure germination and establishment of re-seeding or inter-seeded forage species.

Stage of Maturity and Harvest Interval

See table 3, “Management to Maintain Stand Life, Plant Vigor, and Forage Species Mix”.

Stubble Height

Refer to table 4, “Stubble Heights of Various Hay Crops”.

OTHER FORAGE STAND MANAGEMENT

Use as Nutrient Uptake Tool

Establish and manage forage crops that have the greatest ability to utilize excess nutrients.

Refer to Agricultural Waste Management Field Handbook, Section 651.0606, Nutrient Removal by Harvesting of Crops.

Insects, Disease, and Weeds

Reduce insect damage, and weed infestation by managing for desirable plant vigor.

REFERENCES:

Barnes, R. F., D. A. Miller, & C. J. Nelson. Forages, volume 1, An Introduction to Grassland Agriculture, Fifth Edition. 1995. Iowa State University Press, Ames, IA.

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Integrated Pest Management Guide for Alaska, 1995, Alaska Cooperative Extension, University of Alaska Fairbanks

Reynolds, Ralph editor, Hay and Forage Harvesting fourth edition, 1993, Deer and Co. Moline, IL

A Revegetative Guide for Conservation Use in Alaska, 1991, Alaska Cooperative Extension Service, University of Alaska Fairbanks

Table 1. Recommended Stage of Growth to Harvest Various Hay Crops

Plant Species	Time of Harvest
Alfalfa	Bud stage for first cutting, one-tenth bloom for second cutting For new seedings, allow the first cutting to reach mid to full bloom
Crimson, Red Clover	Early bloom or, if with a companion grass, cut at correct stage for the companion grass
Oats, Barley, wheat	Boot to soft dough stage
Timothy Creeping foxtail Meadow foxtail Red fescue Kentucky bluegrass Reed canarygrass	Boot to early head
Smooth bromegrass	Medium head

Table 2. Moisture Content for Silage, Haylage, and Hay Crops

Crop	**Moisture Percent Range**
Green chop	70-85%
Silage	60-70%
Haylage	40-60%
Hay	12-20%

Table 3. Management to Maintain Stand Life, Plant Vigor, and Forage Species Mix

Plant Species	**Management Technique**
Alfalfa	Allow 4-6 weeks between last harvest and first killing frost
Smooth brome Timothy Red Fescue Bluegrass Meadow and Creeping foxtail	If the stand is planned for short term, it may be cut more frequently with shorter harvest intervals For late summer and fall cuttings: -leave sufficient stubble to hold snow on fields to insulate stand from extreme cold -allow several weeks between last harvest and a killing frost for grasses to develop adequate energy reserves for spring growth -when the last cutting of the year can not be put up due to weather the forage should be removed to prevent smothering of the stand the following spring
Bluejoint	Cut only one time per year at late boot

Table 4. Stubble Heights of Various Hay Crops

Plant Species	Recommended Stubble Height
Alfalfa	3.0 - 6.0 inches
Clover	Cut at correct height for companion grass
Bluegrass	2.5 - 4.0 inches
Timothy	3.0 - 6.0 inches
Smooth brome	3.0 - 4.0 inches
Bluejoint	6.0 - 10.0 inches
Red fescue	3.0 - 5.0 inches